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TITLE: Method to make shallow trench
isolation structure by
HDP-CVD and chemical mechanical
polish processes

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TITLE - TI (1):
Method to make shallow trench isolation structure by
HDP-CVD and chemical
mechanical polish processes

Brief Summary Text - BSTX (3):
This invention relates generally to a method for making
integrated circuits
and more particularly to the planarization of a shallow
trench isolation (STI)
high density plasma chemical vapor deposition (HDPCVD)
isolation layer using
chemical-mechanical polishing (CMP).

Brief Summary Text - BSTX (30):
Also, the DHF wet etching rate of PECVD first nitride
layer is almost the
same as that of HDPCVD oxide film. So it could remove
residue oxide and keep
good profile as shown in FIG. 6.

Brief Summary Text - BSTX (32):

The higher the CMP selectivity the better the final profile. However, LPCVD nitride could not have the same DHF etch properties of PECVD nitride film, which has almost the same etching rate as HDPCVD oxide. After DHF strip, the profile is shown in FIG. 6.

Detailed Description Text - DETX (2):

A preferred embodiment of the present invention will be described in detail with reference to the accompanying drawings. The present invention provides a method of planarizing a non-conformal HDPCVD isolation layer in a shallow trench isolation (STI) regions.

Detailed Description Text - DETX (16):

Referring to FIG. 2, the substrate having defined therein a plurality of trenches that define active areas 11 12. The trenches are comprised of wide 22 and narrow trenches 20. The active areas are comprised of narrow active 12 areas and wide active areas 11. Trench isolation regions are defined on the substrate, e.g. by a conventional photoengraving step involving coating with photoresist, and patterning. Steep sided trenches 20 22 are etched in the substrate 32 by a conventional known method of anisotropic etching.